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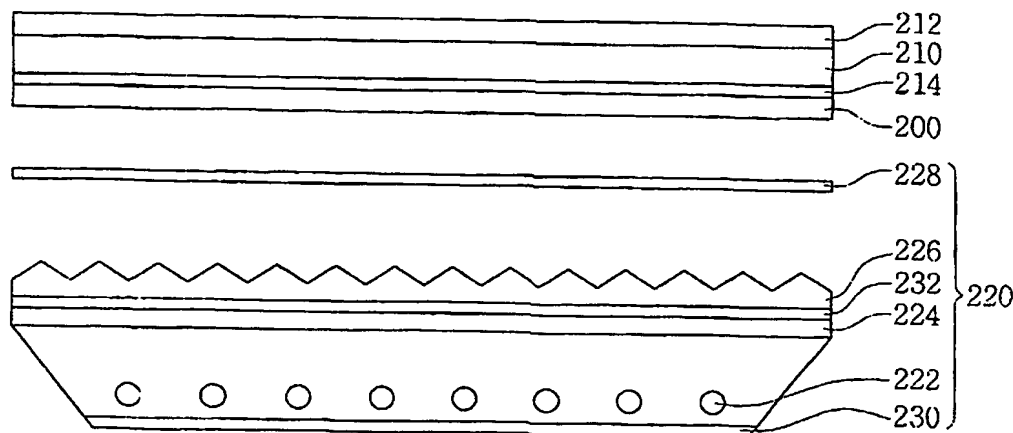
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(54) Title: **LIQUID CRYSTAL DISPLAY APPARATUS**



(57) Abstract: In a backlight assembly capable of increasing luminance and preventing the breakage of an LCD panel (210) and an LCD apparatus having the backlight assembly, the backlight assembly (210) includes a light generating part (222), a light controlling part (224) and a light condensing part (226). The light generating part (222) generates a light. The light controlling part (224) controls the light generated from the light generating part (222). The light condensing part (226) is integrally formed with the light controlling part (224) so as to condense the controlled light. Therefore, the light condensing part (226) is integrally formed with the reflective polarizing film (200).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

G02F1/13357

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G02F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPODOC, WPI, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5684550 A (SHIBATA et al.) 4 November 1997 (04.11.1997) <i>fig. 2,23,40; column 1, line 66 - column 2, line 27; column 5, lines 15-36; column 6, lines 20-44; column 17, lines 16-45; column 20, line 61 - column 21, line 36; column 23, lines 42-62; column 25, lines 1-60; column 28, lines 47-50.</i>	1,4-6
Y		
A		2,3,7,8 9
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X	US 2002/0149712 A1 (KITAMURA et al.) 17 October 2002 (17.10.2002) <i>fig. 1-6; paragraphs 5,6, 35-43.</i>	1,4,6
Y		
A		2,3,7,8 9
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☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5467208 A (KOKAWA et al.) 14 November 1995 (14.11.1995) <i>fig. 20-22; column 13, line 54 - column 14, line 47; column 2, lines 12-27.</i>	1,4,6
A	—	9
Y	EP 0677768 A1 (OIS) 18 October 1995 (18.10.1995) <i>fig. 1a,b; page 8, lines 53 - page 9, line 23; page 10, lines 44-49.</i>	2,7
A	—	1,4,6,8,9,11
Y	JP 2001 228310 A (SUMITOMO CHEMICAL) 24 August 2001 (24.08.2001) <i>fig. 1, paragraphs 10-14,29-32.</i>	3,8
A	----	1,4,6,9,10

INTERNATIONAL SEARCH REPORT
Information on patent family members

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PCT/KR 2004/000278

Patent document cited in search report			Publication date	Patent family member(s)		Publication date	
EP	A	677768		DE	T	69528719T	2003-09-11
				DE	D	69528719D	2002-12-12
				AT	T	227438T	2002-11-15
				US	A	5629784	1997-05-13
				EP	A	0677768	1995-10-18
				CA	A	2146902	1995-10-13
JP	A	20012283 10A2		none			
US	A	20020149 712		none			
US	A	5467208		ES	T	2212218T	2004-07-16
				ES	T	2206831T	2004-05-16
				DE	T	69333189T	2004-06-03
				DE	D	69333355D	2004-01-22
				DE	D	69333189D	2003-10-09
				ES	T	2137969T	2000-01-01
US	A	5684550	1997-11-04	KR	B	237530	2000-01-15
				US	A	5648858	1997-07-15
				JP	A	6034991	1994-02-10